DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 70.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-006403
Date Inspected: 24-Apr-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Japan Steel Works

OSM Arrival Time: 730
OSM Departure Time: 1630
Location: Muroran, Japan

CWI Name: Chung Fu Kuan

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower, Jacking, and Deviation Saddles

Summary of Items Observed:

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

Fabrication Shop #4

Machining Operation of Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed JSW personnel were repositioning the saddle segment to change the location of the machining operation on the end rib plate section of the saddle segment.

Machining Operation of Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E2 is located in Machine Shop #2. On this date, the QA Inspector observed JSW personnel were performing the machining operation on the end rib plate.

Machining Operation of Saddle:West Deviation Saddle Segment W2-E1 (cast welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E1 is located in Machine Shop #2 to have the lifting lugs machined /milled off. On this date, the QA Inspector observed JSW personnel completed the milling operation of removing the lifting lugs off of the edge of the rib plates.

Storage of Saddle: Tower Saddle Segment T1-3 (steel section)

The QA Inspector observed that tower saddle segment T1-3 (steel section) is located in Fabrication Shop #4 for

storage until tower saddle segment T1-3 (cast section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed on the (steel section) of the saddle segment.

Welding Operation of Saddle: West Deviation Saddle Segment W2-E3 (cast section joined to steel section)
The QA Inspector observed the partial-joint penetration groove weld operation on the rib plate (steel section) to rib plate (cast section) of west deviation saddle segment W2-E3. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the welding operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Watanabe (08-5169) on weld joint no. E3Y-12U (plate 3-10 side-fill passes), Mr. T. Inoue (08-5163) on weld joint no. E3Y-5U (plate 3-7 side-fill passes), and Mr. M. Yamashita (73-4195) on weld joint no. E3Y-5U (plate 3-7 side-root pass only) and E3Y-6U (plate 3-8 side-root pass only) were in compliance with WPS SJ-3011-6/-7 per the SMAW process in the (2G) and (3G) horizontal and vertical positions using (4.8 and 4.0) mm diameter E9018M electrode, respectively. The QA Inspector observed that the partial-joint penetration groove weld operation was in process at the end of the QA Inspectors' shift.

Storage of Saddle: West Deviation Saddle Segment W2-W1 (steel section)
The QA Inspector observed that west deviation saddle segment W2-W1 (steel section) is located in Fabrication Shop #4 for storage until west deviation saddle segment W2-W1 (cast section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed on the (steel section) of the saddle segment.

Post Weld Heat Treatment Operation of Saddle: Tower Saddle Segment T1-2 (cast section welded to steel section)
The QA Inspector was informed by Quality Control Inspector Mr. Chung Fu Kuan that the NDT- (magnetic particle test and ultrasonic test) inspection has been completed on the PJP and CJP groove welds prior to the post weld heat treatment- (stress relief) operation on tower saddle segment T1-2. Mr. Kuan informed the QA Inspector that JSW personnel will move the tower saddle segment into the furnace to perform the post weld heat treatment- (stress relief) operation at a later date.

Welding Operation on Saddle: West Deviation Saddle Segment W2-W2 (steel section)
The QA Inspector observed the partial-joint penetration groove weld operation on the stem plate (steel section) to base plate (steel section) of west deviation saddle segment W2-W2. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the welding operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. S. Watanabe (08-5159) on weld joint no. W2S-2L (between plate 5-1 and plate 5-7), Mr. M. Inoue (92-5683) on weld joint no. W2S-2L (between plate 5-13 and plate 5-15), and Mr. M. Matudate (08-5151) on weld joint no. W2S-2L (between plate 5-9 and plate 5-11) were in compliance with WPS SJ-3011-1 per the FCAW process in the (1G) flat position using (1.6) mm diameter TM95 electrode. The QA Inspector observed that the partial-joint penetration groove weld operation was in process at the end of the QA Inspectors' shift.

Gouging Operation of Saddle: Tower Saddle Segment T1-3 (cast section)
The QA Inspector observed that JSW personnel were preheating- (at 4 locations to 110 degrees Celsius) on the stem sections of tower saddle segment T1-3 (cast section). The JSW personnel were preparing to perform the gouging- (air-carbon arc) operation to remove the excess cast material to bring the radius from the stem section to the rib section to the proper radial dimension. These (4) areas were inaccessible to be profiled / milled to the

proper radius by the machining operation. The QA Inspector observed that the preheat operation was in process at the end of the QA Inspectors' shift.

Buttering Weld Operation on Saddle: West Deviation Saddle Segment W2-W1 (cast section)
The QA Inspector observed the weld surfacing (buttering operation / build-up of weld metal) on the inside of the trough on west deviation saddle segment W2-W1 (cast section). The buttering operation is being performed at specific locations where the temporary attachments (stay plates) will be located for dimensional and distortion control. The QA Inspector observed QC Inspector Mr. Chung Fu Kuan verify prior to the start and during the buttering operation that the preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. M. Sainokami (08-5141) were in compliance with WPS SJ-3012-1-2 per the SMAW process in the vertical position using (4) mm LB52A electrode. The QA Inspector observed that the buttering weld operation was in process at the end of the QA Inspectors' shift.

Foundry Shop:
Storage of Saddle: West Deviation Saddle Segment W2-W2 (cast section)
The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W2 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed.

Grinding Operation on Saddle: East Saddle E2-E1
The QA Inspector observed that JSW personnel were performing the grinding operation of the shaped areas on the outside of the trough section and on the rib sections where the excess removal of cast material- (scarfing operation by the air-carbon-arc method) on the rough casting was performed on east saddle E2-E1. The purpose of the grinding operation is to profile the areas to a smooth finish and subsequently the NDT operation. The QA Inspector observed that the grinding operation was in process at the end of the QA Inspectors' shift.

NDT Operation on Saddle: East Saddle E2-W1 (cast section)
The QA Inspector observed NIS QC NDT Personnel Mr. H. Kohama (#86) was performing ultrasonic test (UT) inspection on the rib section and trough section on the outside of east saddle E2-W1. The UT inspection was performed in accordance with ASTM A609M and to the acceptance quality levels in Table 2 of ASTM A609M. The ultrasonic testing quality level (1) is for within (30) mm of the exterior and interior surface for the full length of the trough as shown on the plans and ultrasonic testing quality level (3) for areas outside of (30) mm of the surface as shown on the the plans. The areas inspected were marked with (300 x 300) mm grid lines on the outside of the trough for the purpose of tracking and guidance in scanning. The QA Inspector observed that the UT inspection was in process at the end of the QA Inspectors' shift.

NDT Operation (pending) on Saddle: West Deviation Saddle Segment W2-W3 (cast section)
The QA Inspector observed JSW personnel performed and completed the cleaning operation- (blast cleaning) on west deviation saddle W2-W3 (cast section). The cleaning operation was performed prior to NIS QC NDT personnel performing the NDT (liquid penetrant test- for information only, magnetic particle test, and ultrasonic test) inspection. The QA Inspector was informed by JSW Representative Mr. Hideaki Kon that the layout (placement of grid lines) on the saddle segment (cast section) for the NDT inspection would commence sometime during the week of April 27th 2009.

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Rough Machining Operation of Saddle: West Jacking Saddle (cast section)

The QA Inspector observed that the rough machining operation on west jacking saddle (cast section) was completed. The next operation to be performed by JSW is the NDT inspection (liquid penetrant test- for information only, magnetic particle test, and ultrasonic test) inspection on the rough machined surfaces prior to JSW personnel performing the shaping operation.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with applicable contract documents.

Summary of Conversations:

No significant conversations were reported on this date.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Peterson,Art	Quality Assurance Inspector
Reviewed By:	Lanz,Joe	QA Reviewer